WHAT IS CLAIMED IS:

1. A method of retaining an active subscriber record in a Home Location Register (HLR) for a mobile station operating in a radio telecommunications network when the mobile station switches from a voice mode to a data mode, said method comprising the steps of:

transmitting from the mobile station to a serving base station, a power-down registration message that includes a Data Mode Indicator (DMI);

sending the power-down registration message and DMI from the base station to a serving Mobile Switching Center (MSC);

sending from the MSC to the HLR, a registration cancellation message that includes the DMI; and

in response to receiving the DMI, setting an indicator in the subscriber record in the HLR indicating that the mobile station is operating in the data mode.

2. A method of preventing a call-setup timer in an interrogating Mobile Switching Center (MSC) from expiring when an incoming voice call is made to a called mobile station (MS) that is operating in a data mode in a radio telecommunications network having a voice network portion and a data network overlay, said voice network portion including a Home Location Register (HLR) for the called MS, said method comprising the steps of:

setting an indicator in the HLR indicating that the called MS is operating in the data mode;

receiving in the interrogating MSC, the voice call from the calling MS;

sending a location request message from the interrogating MSC to the HLR;

determining from the indicator in the HLR that the called MS is operating in the data mode;

sending from the HLR to the interrogating MSC, a first response to the location request message, said first response directing the interrogating MSC to wait for a second response; and

suspending the call-setup timer in the interrogating MSC.

3. The method of claim 2 wherein the step of setting an indicator in the HLR indicating that the called MS is operating in the data mode includes receiving in the HLR a Data Mode Indicator (DMI) from the called MS, said DMI being sent by the called MS when switching to the data mode.

4. A method of notifying a called mobile station (MS) that an incoming voice call from a calling MS is waiting when the called MS is operating in a data mode in a radio telecommunications network having a voice network portion and a data network overlay, said voice network portion including a Home Location Register (HLR) for the called MS, said method comprising the steps of:

setting an indicator in the HLR indicating that the called MS is operating in the data mode;

sending a location request message from an interrogating Mobile Switching Center (MSC) to the HLR;

determining from the indicator in the HLR that the called MS is operating in the data mode; and

sending from the HLR through the data network overlay to the called MS, an indication that the voice call is waiting.

5. The method of claim 4 wherein the step of setting an indicator in the HLR indicating that the called MS is operating in the data mode includes receiving in the HLR a Data Mode Indicator (DMI) from the called MS, said DMI being sent by the called MS when switching to the data mode.

6. The method of claim 4 further comprising preventing a call-setup timer in the interrogating MSC from expiring while the indication that the voice call is waiting is sent to the called MS.

7. The method of claim 6 wherein the step of preventing the call-setup timer from expiring includes the steps of:

sending from the HLR to the interrogating MSC, a first response to the location request message, said first response directing the interrogating MSC to wait for a second response; and

suspending the call-setup timer in the interrogating MSC.

8. A method of setting up an incoming voice call from a calling mobile station (MS) to a called MS that is operating in a data mode in a radio telecommunications network having a voice network portion and a data network overlay, said voice network portion including a first Mobile Switching Center (MSC-1) serving the called MS, a Home Location Register (HLR) that stores a user record for the called MS, and a second MSC (MSC-2) serving a calling MS, and said data network overlay including a Mobile Data Immediate System (MDIS) serving the called MS and a gateway connecting the MDIS to an Internet Protocol (IP) network, said method comprising the steps of:

notifying the called MS that the incoming voice call is waiting;

determining whether the called MS accepted the incoming voice call;

preventing a call-setup timer in MSC-2 from expiring while notifying the called MS that the incoming voice call is waiting and while determining whether the called MS accepted the incoming voice call; and

delivering the incoming voice call to the called MS upon determining that the called MS accepted the incoming voice call.

9. The method of claim 8 further comprising the step of retaining an active user record in the HLR for the called MS when the called MS switches from a voice mode to the data mode, said record indicating that the called MS is operating in the data mode.

10. The method of claim 9 wherein the step of retaining an active user record in the HLR for the called MS includes the steps of:

transmitting from the mobile station to a serving base station, a power-down registration message that includes a Data Mode Indicator (DMI);

sending the power-down registration message and DMI from the base station to MSC-1;

sending from MSC-1 to the HLR, a registration cancellation message that includes the DMI; and

in response to receiving the DMI, setting an indicator in the user record in the HLR indicating that the mobile station is operating in the data mode.

11. The method of claim 8 wherein the step of notifying the called MS that the incoming voice call is waiting includes the steps of:

determining from the user record in the HLR that the called MS is operating in the data mode; and

sending from the HLR through the data network overlay to the called MS, an indication that the voice call is waiting.

12. The method of claim 8 wherein the step of preventing a call-setup timer in MSC-2 from expiring includes the steps of:

receiving in MSC-2, the voice call from the calling MS;

sending a location request message from MSC-2 to the HLR;

determining from the user record in the HLR that the called MS is operating in the data mode;

sending from the HLR to MSC-2, a first response to the location request message, said first response directing MSC-2 to wait for a second response; and

suspending the call-setup timer in MSC-2.

13. The method of claim 8 further comprising placing an ongoing data call on hold upon determining that the called MS accepted the incoming voice call.

14. The method of claim 13 further comprising the steps of:

determining that the called MS is switching back to the data mode; and

reconnecting the ongoing data call on hold.

15. A method of setting up an incoming voice call from a calling mobile station (MS) to a called MS that is operating in a data mode in a radio telecommunications network having a voice network portion and a data network overlay, said voice network portion including a first Mobile Switching Center (MSC-1) serving the called MS, a Home Location Register (HLR) for the called MS, and a second MSC (MSC-2) serving a calling MS, and said data network overlay including a Mobile Data Immediate System (MDIS) serving the called MS and a gateway connecting the MDIS to an Internet Protocol (IP) network, said method comprising the steps of:

setting an indicator in the HLR indicating that the called MS is operating in the data mode;

receiving in MSC-2, the voice call from the calling MS;

sending a location request message from MSC-2 to the HLR;

determining from the indicator in the HLR that the called MS is operating in the data mode;

sending from the HLR through the data network overlay to the called MS, an indication that the voice call is waiting;

sending from the HLR to the interrogating MSC, a first response to the location request message, said first response directing the interrogating MSC to wait for a second response;

suspending the call-setup timer in the interrogating MSC;

determining by a voice/data application server in the data network overlay, whether the called MS accepted the incoming voice call;

placing an ongoing data call on hold by the application server, upon determining that the called MS accepted the incoming voice call;

determining by the HLR, whether the called MS accepted the incoming voice call; and

upon determining that the called MS accepted the incoming voice call:

obtaining by the HLR, a routing number for the called MS from MSC-1;

sending a second response to MSC-2, said second response including the routing number for the called MS; and

routing the voice call to the called MS.

16. The method of claim 15 wherein the step of determining whether the called MS accepted the incoming voice call includes receiving in the HLR, a registration message from the called MS.

17. The method of claim 15 wherein the step of determining whether the called MS accepted the incoming voice call includes receiving in the HLR, an indication from the called MS, routed through the MDIS and gateway, that the called MS did not accept the incoming voice call.

18. The method of claim 17 further comprising, upon determining that the called MS did not accept the incoming voice call, sending a second response to MSC-2, said second response including an indication that the called MS did not accept the incoming voice call.

19. A method of setting up an incoming data call from a calling mobile station (MS) to a called MS that is operating in a voice mode in a radio telecommunications network having a voice network portion and a data network overlay, said voice network portion including a first Mobile Switching Center (MSC-1) serving the called MS, a Home Location Register (HLR) for the called MS, and a

second MSC (MSC-2) serving a calling MS, and said data network overlay including a Mobile Data Immediate System (MDIS) serving the called MS and a gateway connecting the MDIS to an Internet Protocol (IP) network, said method comprising the steps of:

sending a Short Message Service (SMS) message containing a Data Waiting Indicator (DWI) to the called MS;

determining whether the called MS accepted the incoming data call; and

routing the incoming data call to the called MS upon determining that the called MS accepted the incoming data call.

20. The method of claim 19 further comprising, before the step of sending an SMS message, the steps of:

receiving the incoming data call in an application server in the data network overlay; and

sending a data waiting message from the application server to a message center (MC) in the voice network portion.

21. The method of claim 19 further comprising placing an ongoing voice call on hold upon determining that the called MS accepted the incoming data call.

22. The method of claim 21 further comprising the steps of:

determining that the called MS is switching back to the voice mode; and

reconnecting the ongoing voice call on hold.

23. A system for setting up an incoming voice call from a calling mobile station (MS) to a called MS that is operating in a data mode in a radio telecommunications network having a voice network portion and a data network overlay, said voice network portion including a first Mobile Switching Center (MSC-1) serving the called MS, a Home Location Register (HLR) for the called MS, and a second MSC (MSC-2) serving a calling MS, and said data network overlay including a Mobile Data Immediate System (MDIS) serving the called MS and a gateway connecting the MDIS to an Internet Protocol (IP) network, said system comprising:

an indicator in a user record in the HLR for the called MS that indicates that the called MS is operating in the data mode;

a voice/data application server in the data network overlay that receives a notification from the HLR that the voice call is waiting, and sends the notification through the data network overlay to the called MS;

a signaling mechanism in the HLR that receives a registration message from the called MS indicating that the called MS accepted the incoming voice call;

call processing logic in the HLR that prevents a call-setup timer in MSC-2 from expiring while the called MS is notified that the incoming voice call is waiting, and while it is determined whether the called MS accepted the incoming voice call, said logic sending a first response message to MSC-2 instructing MSC-2 to suspend the timer until a second response message is received; and

a signaling mechanism in the HLR for obtaining a routing number for the called MS from MSC-1, and returning the routing number to MSC-2 in the second response message.

24. A system for setting up an incoming data call from a calling mobile station (MS) to a called MS that is operating in a voice mode in a radio telecommunications network having a voice network portion and a data network overlay, said voice network portion including a first Mobile Switching Center (MSC-1) serving the called MS, a Home Location Register (HLR) for the called MS, and a second MSC (MSC-2) serving a calling MS, and said data network overlay including a Mobile Data Immediate System (MDIS) serving the called MS and a gateway connecting the

MDIS to an Internet Protocol (IP) network, said system comprising:

a message center that sends a Short Message Service (SMS) message containing a Data Waiting Indicator (DWI) to the called MS;

a signaling mechanism in MDIS-1 for receiving a registration message from the called MS, and for sending the registration message to a voice/data application server in the data network, said registration message indicating that the called MS accepted the incoming data call; and

a voice/data application server in the data network overlay that receives the incoming data call from MDIS-2 and sends a data waiting message to the MC, said application server also routing the incoming data call to the called MS after the registration message indicates that the called MS accepted the incoming data call.